

REMARKS

The Office Action dated October 9, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-28 are pending in the application. Claims 1-3 and 5-12 have been amended to more particularly point out and distinctly claims the subject matter of the invention. Claims 13-28 are new. No new matter is added. Applicant submits the pending claims for consideration in view of the following.

Claims 1-3 and 5-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sakai et al. (US 7,197,303 B2 – hereinafter Sakai) in view of Giallorenzi et al. (US 7,190,683 B2 – hereinafter Giallorenzi). The Office Action acknowledged that Sakai fails to disclose calculating a dominant interference ratio (DIR) being the ratio of the strongest potentially interfering signal with respect to the other potentially interfering signals, and calculating based on DIR or CIR in the format claimed. To justify the §103(a) rejection, however, the Office Action referenced Giallorenzi as disclosing these limitations. This rejection is traversed as follows.

Claim 1, upon which claims 2-7 and 14 depend, is generally directed to a method that includes the operations of establishing a radio channel candidate, processing the radio channel candidate with potentially interfering signals, and calculating a carrier to interference ratio for a selected carrier frequency of the radio channel candidate and the

potentially interfering signals. The method also includes calculating at least one dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals. The method further includes using a criteria based on the dominant interference ratio in a channel selection process for selecting a channel for the connection to be established.

Claim 8, upon which claims 9-11 and 15 depend, is generally directed to an apparatus that includes an establishing unit configured to establish a radio channel candidate. The apparatus also includes a first calculation unit configured to process the radio channel candidate with potentially interfering signals and to calculate a carrier to interference ratio based on a selected carrier frequency of the radio channel candidate and potentially interfering signals. The apparatus further includes a second calculation unit configured to calculate a dominant interference ratio being a ratio of a signal level of a strongest potentially interfering signal with respect to a sum of the signal levels of other potentially interfering signals. The apparatus further includes a selection unit configured to implement a selection process for selecting a channel for a connection to be established using criteria based on the dominant interference ratio.

Claim 12, upon which claim 13 depends, is generally directed to a system that includes a plurality of stations. At least some of the base stations include an establishing unit configured to establish a radio channel candidate and a first calculation unit configured to process the radio channel candidate with potentially interfering signals and

to calculate a carrier to interference ratio based on a selected carrier frequency of the radio channel candidate and potentially interfering signals. The base stations also include a second calculation unit configured to calculate a dominant interference ratio being a ratio of a signal level of a strongest potentially interfering signal with respect to a sum of the signal levels of other potentially interfering signals. The base stations further include a selection unit configured to implement a selection process for selecting a channel for a connection to be established using criteria based on the dominant interference ratio.

Claim 16, upon which claims 17-20 depend, is generally directed to an apparatus that includes a means for establishing a radio channel candidate and a means for processing the radio channel candidate with potentially interfering signals and calculating a carrier to interference ratio based on a selected carrier frequency of the radio channel candidate and potentially interfering signals. The apparatus also includes a means for calculating a dominant interference ratio being a ratio of a signal level of a strongest potentially interfering signal with respect to a sum of the signal levels of other potentially interfering signals. The apparatus further includes a means for implementing a selection process for selecting a channel for a connection to be established using criteria based on the dominant interference ratio.

Claim 21, upon which claims 22-28 depend, is generally directed to a computer-readable medium having computer-executable components configured to perform a method. The method includes the operations of establishing a radio channel candidate and processing the radio channel candidate with potentially interfering signals and

calculating a carrier to interference ratio (CIR) for a selected carrier frequency of the radio channel candidate and the potentially interfering signals. The method also includes calculating a dominant interference ratio (DIR) being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals. The method further includes using a criteria based on the dominant interference ratio in a channel selection process for selecting a channel for the connection to be established.

Each of the foregoing claims recites limitations that are not disclosed or suggested by a combination of Sakai and Giallorenzi.

Sakai generally discloses a cellular communication system that enables an monitoring of interference. In Sakai, the cellular communication system includes a cell station and a maintenance terminal. The cell station provides a communication service for a personal station, and also executes continuous monitoring of an interfering wave during a period to produce an interference monitor data representative of a property of the interfering wave. The maintenance terminal produces an interference profile based on the property.

Giallorenzi generally discloses a communications system that employs the use of both synchronous CDMA and FDMA to provide a variable bandwidth waveform with multiple bonded transmitters and receivers. The bonded transmitters and receivers are disclosed as agile in both frequency and PN code to permit a variable bandwidth and variable rate multiple access system. In a first aspect of Giallorenzi, both CDMA and

FDMA together enable an improved concentration efficiency by making a larger pool of bandwidth available to each user. In a second aspect, Giallorenzi discloses channel bonding across both code space and frequency space, making the system capable of operating within a variable (not necessarily contiguous) bandwidth and at a finely variable rate.

However, a combination of Sakai and Giallorenzi fails to disclose or suggest, at least, "calculating at least one dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals," as recited in claim 1.

As stated above, the Office Action acknowledged that Sakai fails to disclose or suggest this limitation, but relies upon Giallorenzi to disclose the limitations. However, Giallorenzi, similar to Sakai does not disclose or suggest, "calculating at least one dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals."

The Office Action took the position that Giallorenzi discloses the claim 1 "calculating" at column 6, lines 40-51, column 9, lines 41-56, and column 14, lines 4-10. However, a review of these passages do not disclose the alleged material. For example, column 6, lines 40-51 discloses that:

SDMA greatly favors the approach of "fast circuit-switching" over pure, TDM packet-switching in a CDMA environment. By "fast circuit-switching", what is implied is

that packet data services are handled using dedicated connections, which are allocated and terminated based on bandwidth requirements and/or SLAs. An important consideration when providing effective packet-services using this approach lies in the ability of the BS 11 to rapidly determine bandwidth needs, and to both allocate and terminate connections rapidly. With fast channel allocation and termination, SDMA combined with the low frequency reuse offered by S-CDMA is a preferred option, in terms of spectral efficiency, for FWA applications.

Similarly, column 9, lines 41-56 discloses that:

While frequency reuse of one is theoretically possible for DS-CDMA, the true allowable reuse of a specific deployment is dependent on the propagation environment (path loss) and user distribution. For mobile cellular systems, it has been shown that realistic reuse factors range from 0.3 up to 0.7 for A-CDMA: factors that are still much higher than for TDMA systems. In a S-CDMA system, in-cell interference is mitigated by the orthogonal nature of the S-CDMA, implying that the dominant interference results from adjacent cells. For the fixed environments using S-CDMA, true frequency reuse of one can be achieved for most deployments using directional SS antennas and up and downstream power control to mitigate levels of adjacent cell interference. In a S-CDMA environment, true frequency reuse of one implies that a cell is code-limited, even in the presence of adjacent cell interference.

Additionally, column 14, lines 4-10 discloses that:

A related benefit of this approach is that the traffic may be spread evenly across the bands if they are all equally "clean". This has the advantage that in the forward channel, where the power allocated to each channel reduces as users are added, the system can maximize the power allocated to each channel by keeping the number of active users as low as possible in each channel.

Based on the foregoing passages, the Office Action, at page 3, contends that “channel allocation,” “dominant interference results from adjacent cells,” and “in a S-CDMA system, in cell-interference is mitigated by the orthogonal nature of the S-CDMA system, implying that the dominant interference results from adjacent cells” amounts to “calculating at least one dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals.”

Clearly, these passages do not disclose “calculating at least one dominant interference ratio” not to mention “calculating at least one dominant interference ratio of a signal level of a strongest potentially interfering signal” or the “dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals.” Applicant respectfully asserts that it is an unfair interpretation of Giallorenzi to conclude that a “dominant interference results” as disclosed by Giallorenzi is comparable to “dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other potentially interfering signals,” as recited in claim 1. Giallorenzi, like Sakai, does not disclose the dominant interference ratio of the claimed invention.

Accordingly, a combination of Sakai and Giallorenzi fails to disclose or suggest “calculating at least one dominant interference ratio being the ratio of a signal level of a strongest potentially interfering signal with respect to a sum of signal levels of other

potentially interfering signals.” Furthermore, a combination of Sakai and Giallorenzi fails to disclose or suggest “using a criteria based on the dominant interference ratio in a channel selection process for selecting a channel for the connection to be established” for at least the reason that a combination of Sakai and Giallorenzi fails to disclose or suggest the “calculating at least one dominant interference ratio,” as recited in claim 1. Sakai and Giallorenzi fail to disclose using a dominant interference ration in a channel selection process.

Additionally, the Office Action asserts that the motivation for combining Sakai and Giallorenzi is for the purpose of providing a more efficient channel allocation system. Applicants respectfully assert that this conclusory statement is insufficient to support the §103(a) rejection. MPEP §2142 states that, “The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness.” MPEP § 2141 also states that, “The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious” and that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” Nevertheless, the Office Action merely concludes, without any particularity or explanation, that a motivation to combine the references arises from a general interest of efficiency. Therefore, Applicant asserts that the Office Action failed to make a *prima facie* case of obviousness.

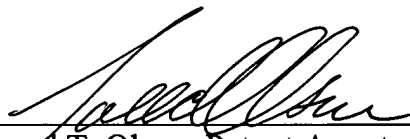
In light of all of the foregoing, Applicant respectfully submits that a *prima facie* case of obvious has not been made with respect to claim 1. Similarly, Applicant respectfully submits that a *prima facie* case of obviousness has not been made with respect to claims 8, 12, 16, and 21 as these claims include limitations similar to those of claim 1, though each claim has its own scope. Furthermore, Applicant respectfully asserts that a *prima facie* case of obviousness has not been made with respect to claims 2-7, 9-11, 13-15, 17-20, and 22-28 for at least their dependency from claims 1, 8, 12, 16, and 21. Therefore, Applicant respectfully requests that the obviousness rejection of the pending claims be withdrawn.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

The foregoing comments made with respect to the positions taken by the Examiner are not be to construed as acquiescence with other positions of the Examiner that have not been explicitly contested. Accordingly, the above arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of the claim or other claims. Additionally, the Applicant does not acquiesce that the cited art anticipates or renders obvious any of the claims as previously presented, and reserve the right to pursue any of the previously presented claims in a subsequent application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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